



MOTOROLA

MC54/74HC191

Product Preview

PRESETTABLE 4-BIT BINARY UP/DOWN COUNTER

The MC54/74HC191 is identical in pinout to the LS191. The device inputs are compatible with standard CMOS outputs; with pullup resistors, they are compatible with LSTTL outputs.

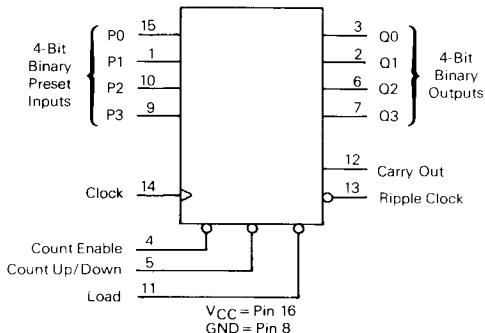
This counter can be preset by applying the desired value in 4-bit binary to the Preset Inputs and then bringing the Load input low. Counting is achieved when the Load input is high, the Count Enable pin is low, and the Count Up/Down pin is either low (for up-counting) or high (for down-counting). The state of the counter changes on the positive transition of the Clock input.

Two outputs have been made available to perform the cascading function: Ripple Clock and Carry Out. The latter output produces a high-level output pulse with a duration approximately equal to one complete cycle of the clock when the counter overflows or underflows. The Ripple Clock output produces a low-level pulse equal in width to the low-level portion of the Clock when an overflow or underflow condition exists. The counters can be cascaded by feeding the Ripple Clock output to the Count Enable input of the succeeding counter if parallel clocking is used, or to the Clock input if parallel enabling is used. The Carry Out can be used to accomplish look-ahead for high-speed operation.

- Low Power Consumption Characteristic of CMOS Devices
- Output Drive Capability: 10 LSTTL Loads Minimum
- Operating Speeds Similar to LSTTL
- Wide Operating Voltage Range: 2 to 6 Volts
- Low Input Current: 1 μ A Maximum
- Low Quiescent Current: 80 μ A Maximum (74HC Series)
- High Noise Immunity Characteristic of CMOS Devices
- Diode Protection on All Inputs

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BLOCK DIAGRAM

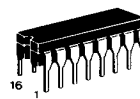


This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

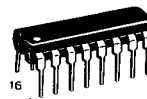
HIGH-PERFORMANCE CMOS

LOW-POWER COMPLEMENTARY MOS
SILICON-GATE

PRESETTABLE 4-BIT BINARY UP/DOWN COUNTER



J SUFFIX
CERAMIC PACKAGE
CASE 620



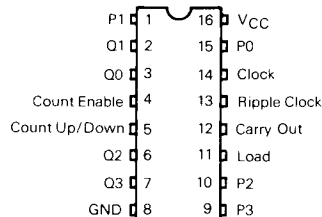
N SUFFIX
PLASTIC PACKAGE
CASE 648

ORDERING INFORMATION

54 Series: -55°C to $+125^{\circ}\text{C}$
MC54HCXXXJ (Ceramic Package Only)

74 Series: -40°C to $+85^{\circ}\text{C}$
MC74HCXXXN (Plastic Package)
MC74HCXXXJ (Ceramic Package)

PIN ASSIGNMENT



FUNCTION TABLE

Inputs				Function
Load	Count Enable	Count Up/Down	Clock	
H	L	L		Count Up
H	L	H		Count Down
L	X	X	X	Preset (Asynch.)
H	H	X	X	No Change